Office of River Protection

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DOE INVESTIGATING DOME OF HANFORD SINGLE-SHELL TANK

The U.S. Department of Energy (DOE) and its Hanford tank farm contractor, CH2M HILL Hanford Group, Inc., are investigating an anomaly inside the top of an underground radioactive-waste storage tank to determine whether it is a crack or a feature formed by the construction forms when the tank was built in the 1940's. During routine sampling operations inside the 530,000-gallon tank, known as C-107, a video camera picked up the anomaly on the innersurface of the concrete dome between a pipe penetration and the tank wall.

As a precaution, Hanford officials have expanded the load restrictions in the area above the 75-foot-diameter tank by removing a sampling truck from the area above the tank and prohibiting any other heavy equipment in the area during the investigation. While load restrictions have long been in place to protect these old tanks, some of which are more than 50 years old, the additional restrictions have been imposed as a protective measure until officials understand the implications of this anomaly.

Hanford officials are conducting a more-detailed engineering evaluation, including reviewing previous pictures of the inside of the tank to see if the feature in the concrete was caused during construction in the 1940s or occurred more recently. They also are evaluating more video investigations. The site will advise Energy Secretary Abraham by the end of March on the initial results of this evaluation and whether further actions may need to be taken.

The waste level in the tank is well below the area of concern, and thus no material was able to escape. A structural engineer has evaluated the video and has initially determined that the tank dome gives no appearance of structural weakness.

Tank C-107 contains approximately 257,000 gallons of radioactive and hazardous waste in the form of sludge. The tank went into service in 1946 and was removed from service in 1977. All of the removable liquid was pumped out of the tank by 1995.

The single-shell tanks are constructed of steel-reinforced concrete with a steel liner that covers the bottom of the tank and extends up the sides of the tank to the area where the tank wall curves into a dome. The dome, or tank ceiling, is constructed of a foot-thick reinforced concrete that surrounds the entire tank.

Tank C-107 is one of 149 single-shell tanks on the Hanford site. It was constructed in the early 1940's with a design life of 20 years. Although Tank C-107 is considered a sound tank that has not released waste to the environment, 67 of Hanford's single-shell tanks have leaked more than one million gallons of waste into the soil around the tanks. Hanford scientists have recently confirmed that some of the contaminants associated with these leaks have reached the groundwater some 250 feet below the tanks. Hanford also has 28 larger, newer double-shell tanks that are constructed of two steel liners surrounded by concrete, none of which have leaked.

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Note: *The Office of River Protection was created by Congress in 1998 to manage the nation's largest and most complex environmental cleanup project - retrieval and treatment of tank waste at the Hanford Site. More background information on the Office of River Protection can be found on the office's Web site at: http://www.hanford.gov/orp.*

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